

Command and Control of Airpower in Irregular Warfare

A Monograph

by

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Abstract

COMMAND AND CONTROL OF AIRPOWER IN IRREGULAR WARFARE by Major J. Ian Chambers, USAF, 44 pages.

The Luftwaffe's defeat of Allied airpower in the Kasserine Pass in 1943 imprinted the principle of mass upon the US Air Force's organizational psyche. The then Army Air Corps recognized the necessity of consolidating airpower under the command and control of a single airman to mass airpower's effects. This belief in centralized control of airpower became a central reason for the creation of an independent Air Force in 1947. The linkage between centralized control and the origin of the Air Force plays a significant role in Air Force culture.

This study examines the Air Force's ability to apply the centralized control approach to irregular warfare. The growing focus and literature on the differences between traditional warfare and irregular warfare challenge the US Air Force's adherence to centralized control.

This study asks, "Can the Air Force's current, traditional command and control structure integrate airpower effectively into irregular warfare (IW) operations?" This research question leads to a review of the irregular warfare theory, organizational theory, and application of these theories in the current context to determine the effectiveness of centralized control in irregular warfare. The study compares the requirements identified by theory against the Air Force's command and control structure, the Theater Air Control System (TACS).

Subsequent chapters discuss the TACS performance in contemporary IW environments. The discussion leads to limitations of the TACS in irregular warfare and potential improvements.

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Introduction

The United States Government's ill preparedness for the transition to stability operations in Iraq and Afghanistan has resulted in extended counterinsurgency operations in both of these countries. The scope and duration of these counterinsurgency operations has grown beyond the capabilities of the U.S. Special Operations Command (USSOCOM), the Department of Defense (DoD) lead for Irregular Warfare (IW).¹ Conventional U.S. forces have stepped in to execute these extensive IW operations in Iraq and Afghanistan. Accepting this mission has required all of the services to adapt their forces from traditional to irregular warfare.

The demands of IW in Iraq and Afghanistan have exposed the adaptability of different aspects of the services' approach to war. The Army and Marines have adapted their decentralized approach to command and control to the complex nature of IW. The US Air Force however continues to adhere to its airpower tenet of centralized control and decentralized execution of airpower. This doctrinal tenet of airpower has become a non-negotiable cultural belief within the Air Force. These opposing command and control (C2) perspectives have created tension between the services in the employment of Joint forces in IW operations. This tension has hindered integration of airpower in current IW operations, reducing our ability to exploit airpower's asymmetric advantage in IW, and threatened the future relevance of the US Air Force in IW.²

The Air Force's cultural belief in centralized control manifests itself in its command and control structure, the Theater Air Control System (TACS). The TACS plays the pivotal role in integrating airpower into Joint IW operations.³ The Air Force's cultural belief in centralized control and decentralized execution drives the organization and employment of the TACS. This

¹ U.S. Department of Defense, *Irregular Warfare Joint Operating Concept Version 1.0* (Washington D.C.: Government Printing Office, 2007), iii.

² Laura Dadkhah, "Empty Skies Over Afghanistan," *New York Times*, February 18, 2010, <http://www.nytimes.com/2010/02/18/opinion/18dadkhah.html?scp=1&sq=Empty%20Skies%20Over%20Afghanistan&st=cse> (accessed March 5, 2010).

³ Based on author's experience in different TACS components in support of Operation ENDURING FREEDOM from 2002-2004, and Operation IRAQI FREEDOM in 2007-2008.

study examines the impact of this cultural belief on IW airpower employment and addresses the question, “Can the Air Force’s traditional command and control structure effectively integrate airpower into decentralized IW operations.” Through examination of relevant theory, a review of the application of theory, and analysis of theory in the new context the study examines the following hypothesis: The Air Force’s command and control structure, the TACS, does not enable effective integration of airpower in IW operations. The significance of this hypothesis stems from the increasing importance of IW in US national security policy.

US national leadership has repeatedly called for improving the nation’s IW capabilities in response to the current IW operations. This focus in the administration and in Congress has shaped Department of Defense budgeting and policy decisions. The desire to keep defense growth under control has resulted in IW budgeting directly competing with traditionally focused budget items. Establishing relevance to the current conflicts and the greater IW focus has played a role in determining the survival of the military services’ programs. The President highlighted the growing impact of IW on defense budgeting in his August 12, 2009 address to the Veterans of Foreign Wars. The President’s message contains a warning for the conventionally focused programs of the Cold War,

“As we know, much of our defense establishment has yet to fully adapt to the post-Cold War world, with doctrine and weapons better suited to fight the Soviets on the plains of Europe than insurgents in the rugged terrain of Afghanistan. Twenty years after the Cold War ended, this is simply not unacceptable. It’s irresponsible. Our troops, and our taxpayers, deserve better. And that’s why -- that’s why our defense review is taking a top-to-bottom look at our priorities and posture, questioning conventional wisdom, rethinking old dogmas and challenging the status quo.”⁴

The President’s statement demonstrates his commitment to transform the forces to a new type of warfare that focuses on the fights of today (Iraq and Afghanistan) in lieu of the traditional threats of the Cold War. The President has not yet published a National Security Strategy to

⁴ Andrew Malcolm, “Obama’s Every Word—and promise—to the VFW,” *Los Angeles Times*, August 17, 2009, <http://latimesblogs.latimes.com/washington/2009/08/obama-speech-transcript-vfw.html> (accessed February 13, 2010).

frame the role of IW in national strategy. The Secretary of Defense provided insight into the Obama administration's focus on IW in the 2008 National Defense Strategy (NDS).

Secretary Gates supports the prioritization of IW in the 2008 NDS by highlighting the perceptions of likely adversaries, "U.S. dominance in traditional warfare has given prospective adversaries, particularly non-state actors and their state sponsors, strong motivation to adopt asymmetric methods to counter our advantages. For this reason, we must display a mastery of irregular warfare comparable to that which we possess in conventional combat."⁵ The Secretary's termination of the F-22 and the Army's Future Combat System (FCS) programs reinforced this IW emphasis. He publicly linked the termination of these programs with their IW irrelevance.⁶ The President and Secretary's emphasis on IW has quickly influenced Air Force leadership to address the Air Force's IW capabilities.

On 24 April 2009, the current Air Force Chief of Staff, General Norton Schwartz, in an address at the Brookings Institute acknowledged that the Air Force was seriously considering establishing a conventional force Irregular Warfare Wing.⁷ Additionally, General Schwartz and the Secretary of the Air Force, Michael Donley, publicly supported the end of F-22 production, while at the same time rapidly expanding more IW relevant programs such as Unmanned Aerial Systems (UAS).⁸ The emphasis on IW by the President, the Secretary of Defense, and the Air Force seeks to prevent the U.S. from paying the enormous costs for IW unpreparedness in the future.

⁵ U.S. Department of Defense (DoD), *National Defense Strategy June 2008* (Washington D.C.: Government Printing Office, 2008), 4.

⁶ Mark Thompson, "Gates Down on the F-22," *Time*, <http://www.time.com/time/nation/article/0,8599,1710944,00.html> (accessed February 13, 2010).

⁷ Air Force Chief of Staff General Norton A. Schwartz, "The Air Force's Role in Irregular Warfare and Counterinsurgency" (lecture: The Brookings Institute, Washington D.C., April 24, 2009).

⁸ Michael Donley and Norton Schwartz, "Moving Beyond the F-22" under US Air Force Live, April 13, 2009, <http://airforcealive.dodlive.mil/index.php/2009/04/moving-beyond-the-f-22/> (accessed February 13, 2010).

As of February 12, 2010, more than 5,000 US service members have given their lives in Iraq and Afghanistan.⁹ Additionally, the United States has appropriated 1.08 trillion dollars for these conflicts.¹⁰ The nation's unpreparedness to engage in IW operations undoubtedly contributed to these significant costs. The Marines and Army have enacted significant changes in doctrine, training, equipment, leadership, and personnel to improve IW proficiency. Critics have charged the Air Force with resisting these types of significant changes.¹¹ Despite this criticism, the Air Force has updated doctrine, ramped up training and production of IW relevant weapon systems, surged air mobility forces, and sent thousands of airmen to Iraq and Afghanistan to cover other service personnel shortfalls. Despite these contributions, the Air Force has been unwilling to change its approach to command and control of airpower.

This rigid approach to C2 has created friction between the Air Force and Army. The Army has fielded organic airborne systems such as unmanned aerial systems (UAS) and fixed wing transport to improve airpower responsiveness.¹² The proliferation of these programs in a traditionally Air Force capability suggests an inability or unwillingness of the U.S. Air Force to meet the Army's airpower requirements in IW.

The U.S. Air Force has developed a command and control structure based on its cultural belief in the tenet of centralized control and decentralized execution. The hard lessons of past conventional conflicts have forged this tenet. Determining the suitability of this tenet to IW requires examination of IW, airpower employment in IW, and the C2 of airpower in IW.

The prominence of the IW campaigns in Iraq and Afghanistan has generated a wealth of study on irregular warfare theory. Within this body of IW theory, there is a smaller body of

⁹ Department of Defense, <http://www.defense.gov/news/casualty.pdf> (accessed February 13, 2010)

¹⁰ Congressional Research Service, Amy Belasco, Specialist in U.S. Defense Policy and Budget, "The Cost of Iraq, Afghanistan, and Other Global War on Terror Operations Since 9/11", September 28, 2009.

¹¹ Donald A. MacCuish, "The Flight to Irrelevance" in *Global Insurgency and the Future of Armed Conflict: Debating Fourth Generation Warfare*, ed. Terry Terriff, Aaron Karp, and Regina Karp (New York: Routledge, 2008), 216.

¹² Norman Polmar, "Army Embarks on Ambitious UAV Plan," Defense Tech.Org, March 19, 2008, <http://www.defensetech.org/archives/004072.html> (accessed February 13, 2010).

theory devoted to employment of airpower and command and control of IW forces. The next chapter examines IW theory with an emphasis on airpower employment and command and control of IW forces to compare C2 approaches of airpower in IW.

Chapter 2: Irregular Warfare Theory

The hypothesis that the Air Force's command and control structure does not enable effective integration of airpower in Irregular Warfare stems from the differences between traditional and irregular warfare. These differences change the employment of airpower and necessitate a different approach to command and control of airpower. This chapter examines the differences between traditional and irregular warfare theory and doctrine and discusses their implications for the command and control of airpower. This study uses the traditional and irregular warfare definitions published in Joint Publication 3-24 Counterinsurgency.

Traditional warfare is characterized as a confrontation between states or coalitions/alliances of states. This confrontation is predominately between belligerents pitting one side's government and military against the opposition's government and military. The objective is to defeat an adversary's armed forces, destroy an adversary's war-making capacity, or seize or retain territory in order to force a change in an adversary's government or policies. Military operations in traditional warfare normally focus on an adversary's armed forces and critical infrastructure to ultimately influence the adversary's government.¹³

The traditional warfare objectives of defeating an adversary's armed forces, destroying their war making capacity, and seizing or retaining their key terrain reflect the US military's adherence to the theory of war proposed by Carl von Clausewitz in his book *On War*.¹⁴ His focus on destruction of the enemy's armed forces first appeared in US military doctrine in the 1941 US Army Field Manual 100-5, *Operations*. The Field Manual states, "The ultimate objective of all military operations is the destruction of the enemy's armed forces in battle."¹⁵ The US Army adopted Clausewitz's objectives, but largely rejected the more contemporary German strategy of maneuver to achieve decisive defeat of the enemy. Instead, the US Army adopted a strategy of mobilizing overwhelming mass to defeat an enemy's force. This strategy reflected the successes

¹³ U.S. Joint Chiefs of Staff, *Joint Publication 3-24, Counterinsurgency Operations*, (Washington D.C.: Government Printing Office, 2009), I-8.

¹⁴ Carl Von Clausewitz, *On War*, ed. Michael Howard and Peter Paret (Princeton: Princeton University Press, 1976), 90.

¹⁵ U.S. War Department, *Field Manual 100-5, Operations* (Washington D.C.: Government Printing Office, 1941), 22.

of General Ulysses S. Grant against the Confederate Army in the US Civil War. The linkage between mass and Allied victory in World War II solidified mass as a keystone in America's way of war.¹⁶ Mass survives as a contemporary principle of war in US military doctrine.

Despite this recognition of mass by the Army, the Army Air Corps entered World War II without a command and controls structure able to mass airpower. The Army divided airpower amongst Corps Commanders, preventing airpower from achieving any mass against the Germans. The Luftwaffe's defeat of Allied Airpower in the Kasserine Pass in North Africa demonstrated the advantages of massing airpower in defeating enemy air and ground forces. Reeling from this experience, airpower advocates pushed for centralized command of air assets under a single airman. Field Manual 100-20 of 1943 captured the lessons of North Africa for the command and control of airpower,

"The inherent flexibility of air power, is its greatest asset. This flexibility makes it possible to employ the whole weight of the available air power against selected areas in turn; such concentrated use of the air striking force is a battle winning factor of the first importance. Control of available air power must be centralized and command must be exercised through the Air Force Commander if this inherent flexibility and ability to deliver a decisive blow are to be fully exploited".¹⁷

This paragraph captures the linkage between traditional warfare's objective of destroying enemy forces, employing massed airpower, and centralized control of airpower. This relationship provides the logic for the employment of US Air Force airpower in war. Airmen organize and employ airpower under the command and control of a single commander to defeat the enemy's force.

Determining the suitability of this organization and employment of airpower in support of irregular warfare requires an examination of the differences between traditional warfare and IW. Joint Publication 3-24's definition of IW provides a baseline for comparison.

¹⁶ Russell F. Weigley, *The American Way of War: A History of United States Military Strategy and Policy* (New York: Macmillan, 1973), 313.

¹⁷ U.S. War Department, *Field Manual 100-20, Command and Employment of Air Power* (Washington D.C.: Government Printing Office, 1943), 2.

Irregular Warfare is a violent struggle among state and nonstate actors for legitimacy and influence over the relevant populations. IW favors indirect and asymmetric approaches, though it may employ the full range of military and other capacities, in order to erode an adversary's power, influence, and will. Enemies of the United States may be loosely organized networks or entities with no discernible hierarchical structure. Nevertheless, they have critical vulnerabilities to be exploited within their interconnected political, military, economic, social, information, and infrastructure systems. These actors often wage protracted conflicts in an attempt to break the will of the state. Military operations alone rarely resolve such conflicts. This publication will address all the instruments of national power. States have sovereign rights and a social contract with their inhabitants; therefore, they have sovereign responsibilities to combat these irregular threats. What makes IW "irregular" is the focus of its operations—the population—and its strategic purpose—to gain or maintain control or influence over, and the support of that population through various efforts.¹⁸

IW does not seek the defeat of the enemy's force as the primary objective. The Joint Publication definition suggests that the struggle to influence the relevant population is the primary objective. The basis for this significant deviation from Clausewitz's theory of war stems from the US military's long history in IW. Reviewing the history of IW theory provides insight into this definition and into the differences between traditional and irregular warfare. Despite the relatively short history of IW theory, historical narratives of irregular warfare date back to biblical times.¹⁹ The United States origin begins with a violent struggle to gain legitimacy and influence over the population of the American colonies.

The United States began its long history with IW with its fight for independence in the late 18th century. The American insurgents defeated the British not by defeating their fielded forces, but by delegitimizing British control and outlasting the will of the British people.²⁰ The British attempted to defeat the insurgents through seizing key terrain and destroying the Continental Army. This strategy failed to consider the rural nature of the insurgency and the significance of the militia forces. The British occupied New York, Boston, and Philadelphia at different times through the war without ending the conflict. The inability of the British to

¹⁸ Joint Publication 3-24, *Counterinsurgency Operations*, I-7.

¹⁹ Ian F. W. Beckett, *Modern Insurgencies and Counter-Insurgencies: Guerrillas and their Opponents since 1750* (New York: Routledge, 2001), 1.

²⁰ Victor Brooks and Robert Hohwald, *How America Fought Its Wars: Military Strategy from the American Revolution to the Civil War* (Conshohocken, PA: Combined Publishing), 145.

influence the American colonists to support the legitimacy of British rule enabled the American insurgents to defeat the modern conventional force. Despite the inferior forces of the colonies defeating the greatest European power at the time, IW remained in the shadows of traditional warfare on the European continent until the late 19th century. The colonial conflicts of the 19th century brought IW to the forefront. Colonel Charles E. Callwell's book, *Small Wars: Their Principle and Practices*, caught the attention of military practitioners in the late 19th century as it focused principles and practices to defeat rebellious colonial populations.²¹ Callwell categorized Small Wars into six distinct categories according to the nature of the opposing force. This categorization and subsequent analysis provided specific principles and tactics to wage a counterinsurgency against an asymmetric force.²²

This work provided a foundation for future IW theorists. The US Marine Corps expanded the breadth of IW theory beyond colonial warfare with its release of their *Small Wars Manual* in 1940. The *Small Wars Manual* pointedly discussed the differences between conventional conflict and small wars, focusing on the interaction with the population, the political nature of small wars, and the complexity of the operations.²³ The scope and magnitude of World War II quickly overshadowed this IW benchmark. This allowed US irregular warfare experience, theory, and doctrine to atrophy until thrust into a counterinsurgency campaign in Southeast Asia.

The French and American counterinsurgency campaigns in Vietnam revived interest in IW theory. Theorists built upon the IW literature of the 19th and early 20th century to examine the broader operational and strategic aspects of IW. The Vietnamese campaign introduced the Maoist People's War form of insurgency to US irregular warfare. The North Vietnamese applied Maoist doctrine to the conflict, while the United States largely applied a traditional warfare

²¹ C.E. Calwell, *Small Wars: Their Principles and Practice*, 3rd ed. 1906. Reprint, (London: University of Nebraska Press, 1996), 21.

²² Ibid., 21.

²³ U.S. Marine Corps, *Small Wars Manual: United States Marine Corps 1940* (Washington D.C.: Government Printing Office), 11.

approach to defeating the North Vietnamese. David Galula released *Counterinsurgency Warfare: Theory and Practice* in the midst of the Vietnam conflict in 1964. Galula's counterinsurgency theory focused on the population as the objective and introduced the impact of a common ideology upon an insurgency.²⁴ Despite previous IW experience and consistent theory and doctrine, the United States and French governments failed to wage an effective IW campaign and subsequently lost to an inferior opponent. The US failure to defeat the North Vietnamese eliminated the nation's appetite to engage in future irregular warfare conflicts. This effect also prevented the US military from harvesting the significant IW experience for future conflicts. The US irregular warfare history consistently demonstrates the importance of the people, its tendency to overlook IW, and the complexity of IW operations.

This fundamental change from traditional warfare subsequently alters other characteristics of warfare. Achieving influence over the population does not usually result from a decisive operation or series of operations. The population's acceptance of a government as legitimate may grow incrementally, inconsistently, or falter quickly depending on their perception of the environment. In fact, success or defeat may not be recognized until well after the conflict has concluded. This reduces military forces ability to build momentum through operations, maintain the initiative, and set definitive criteria for termination of military action.²⁵ Additionally, the weaker insurgent force will seek to extend the conflict to weaken the stronger conventional force and capitalize on their shorter logistic lines. The unpredictable battle rhythm and protracted nature of influencing a population raises the importance of persistence and increases the complexity of the operational environment.

Influencing a civilian population requires an understanding of the interdependencies within the population. These interdependencies represent a characteristic of a complex adaptive

²⁴ David Galula, *Counterinsurgency Warfare: Theory and Practice* (Westport, CT: Greenwood Publishing Group, 1964), 19.

²⁵ Galula, 6.

system. A complex adaptive system is a dynamic network of many agents (the people, insurgents, security forces) acting in parallel, constantly acting and reacting to what the other agents are doing.²⁶ The population interacts according to rules that allow it to survive between the pressures and actions of the two opposing forces seeking to influence them. The population adapts to survive. The complexity of the counterinsurgency arises from the unforeseen results of an action upon an agent in the system. For example, a US military unit kills a local man while planting an improvised explosive device. The US military unit did not realize that the man's father is an influential tribal elder. The tribal elder revokes support for the US military unit and allows passive support to insurgents. This passive support increases IED attacks by 20 percent.

The Army and Marine Counterinsurgency Field Manual articulates the need to generate an understanding prior to constructing a solution, and being ready to continually adapt the understanding as the complex system evolves.²⁷

The complexity of insurgency presents problems that have incomplete, contradictory, and changing requirements. The solutions to these intensely challenging and complex problems are often difficult to recognize as such because of complex interdependencies. While attempting to solve an intensely complex problem, the solution of one of its aspects may reveal or create another, even more complex, problem.²⁸

Developing an understanding of the population provides the context to an insurgency, such as the cleavages the insurgents are exploiting within the population.²⁹ The interdependencies in a population require very specific knowledge at the local level built over time.

Counterinsurgent forces require decision-makers at the lowest levels to develop and act upon the specific knowledge of the population and the insurgents.³⁰ This enables discriminate use of military action to influence the population. The command and control structure of IW

²⁶ Antoine Bousquet, *The Scientific Way of Warfare: Order and Chaos on the Battlefields of Modernity* (New York: Columbia University Press, 2009), 175.

²⁷ U.S. Army and U.S. Marine Corps, *Field Manual 3-24 or Marine Corps Warfighting Publication 3-33.5, Counterinsurgency* (Washington D.C.: Government Printing Office, 2006), 4-1.

²⁸ *Ibid.*, 4-1.

²⁹ Bard E. O'Neill, *Insurgency & Terrorism: From Revolution to Apocalypse* (Dulles, VA: Potomac Books, 2005), 79.

³⁰ Bousquet, 243.

forces should empower tactical level leaders to develop relationships with the population and execute operations based on their knowledge.

The review of traditional and irregular warfare highlights the significant difference in the primary objective. Irregular warfare's objective to influence the population introduces the additional complexity of the interdependencies of the population. Traditional warfare focuses on influencing the population by defeating the forces of the government representing the population. The IW environment focuses directly on the population itself, expanding the diversity and breadth of the operations. Acting upon this complex adaptive system requires extensive local knowledge. This focus on locally oriented tactical operations requires a command and control approach that empowers decision-making at the lowest levels.

Prior to examining different approaches to command and control, a baseline for the term needs to be established. The DoD's Joint Publication 1-02 defines command and control as,

The exercise of authority and direction by a properly designated commander over assigned and attached forces in the accomplishment of the mission. Command and control functions are performed through an arrangement of personnel, equipment, communications, facilities, and procedures employed by a commander in planning, directing, coordinating, and controlling forces and operations in the accomplishment of the mission. Also called C2.³¹

This definition states that a commander exercises authority and direction over forces to accomplish a mission, but does not describe how the commander exercises this control or how much responsibility the commander may delegate in the *planning, directing, coordinating, and controlling forces and operations*. Additionally, the definition does not include decision or decision-making, which are at the heart of command and control. Theories on command and control debate the optimum balance between effectiveness and efficiency in commanders' decision-making processes.

³¹ U.S. Joint Chiefs of Staff, *Joint Publication 1-02 Department of Defense Dictionary of Military and Associated Terms* (Washington D.C.: Government Printing Office, 2009), 103.

Richard Butler in *Designing Organizations: A Decision-Making Perspective* captures the tension between these ideals in his discussion about requisite decision-making capacity.³²

Requisite decision-making capacity is maintaining the balance between the need to minimize decision-making costs and the need to adapt to uncertainty. Creating an organization able to minimize decision-making costs (i.e. time), but also sufficiently able to adapt to uncertainty meets the requisite decision-making capacity. The military commonly refers to minimizing decision-making costs as efficiency. Effectiveness focuses on the ability to achieve objectives.

The primary factor influencing the balance between efficiency and effectiveness in decision-making is uncertainty. A higher degree of uncertainty requires an increased adaptability to achieve objectives, usually sacrificing efficiency in the process of adaptation. Decentralized, less formal structures or organizations provide greater adaptability to uncertainty, but increase decision costs and may lower production rates. Crisp, formally structured organizations reduce decision-making costs, increase production rates, but struggle with varying tasks and uncertain environments.³³

The review of IW theory suggests that the prominent role of the population increases the uncertainty in IW due to the interdependencies within the population. Organizational theory suggests that a decentralized, high decision-making capacity organization would provide the greatest chance of success in an IW environment. Essentially IW calls for command and control structures designed more for adaptation than for efficiency. Traditional warfare requires a structure with an ability to balance effectiveness with enough efficiency to produce the speed and synchronization of effects required to defeat a conventional force.

The overarching idea for the Army and Marines is the German concept *Auftragstaktik*, which relies on mission type orders that convey commander's intent, but do not detail how to

³² Richard Butler, *Designing Organizations: A Decision Making Perspective* (London: Routledge, 1991), 100.

³³ Ibid., 135.

accomplish the mission. This provides the subordinate unit and commander the decision space to adapt the environment while accomplishing the mission. US Army Field Manual 6-0, *Mission Command*, specifically warns about the inherent danger of over-control, which may result from commanders trying to control subordinate forces to generate a mass of effects, but in reality steals the initiative from subordinates and has the potential to fatigue subordinate commanders from constantly reacting to detailed orders.³⁴ Mission command, in concept, supports organizational theory's prescription for a more adaptive versus crisp decision-making structure. Joint Forces Command's (JFCOM) adoption of decentralized control as *the* C2 approach for IW provides evidence of the increasing recognition of its necessity for IW.³⁵ The US Air Force provides the one contrasting voice to this acceptance of decentralized control of forces.

Little airpower theory directly addresses the command and control of airpower in IW. Earlier in the chapter, the study reviewed the linkage between centralized control of airpower, mass, and defeating enemy's forces. The analysis of IW theory has shown that the lynchpin of this construct, the objective of defeating enemy forces, does not usually apply. The enemy forces regenerate and reorganize too easily and quickly to succeed in IW by focusing on their defeat without addressing the sources of conflict amongst the population. The review of theory suggests that decisive defeats of the enemy on the battlefield rarely occur in IW. The Air Force's current organization of airpower reflects the traditional warfare objective of decisively defeating the enemy on the battlefield. Donald MacCuish's article "The Flight to Irrevelance" suggests that the Air Force continues to centrally control its forces in hopes to strike the decisive blow against enemy forces in IW, despite the historical support for more decentralized approaches.³⁶ MacCuish links the Air Force's performance in Vietnam with a misguided C2 approach, "The USAF's contribution to the counterinsurgency effort in Vietnam was the continued embrace of

³⁴ U.S. Army, Field Manual 6-0: *Mission Command: Command and Control of Army Forces* (Washington D.C.: Government Printing Office), 3-7.

³⁵ U.S. Joint Forces Command, *Irregular Warfare Vision* (Norfolk, VA,2009), Attachment 1.

³⁶ Donald A. MacCuish, 211.

Douhet and Mitchell's misguided notion that airpower in its own right could produce decisive results".³⁷

Centralized control and decentralized execution has grown to be a cultural mantra for Air Force independence and its ability to be the decisive force in combat, despite its limited acceptance outside of the Air Force. This cultural belief has limited the debate on its effectiveness in IW. A review of the current doctrinal definitions of centralized control and decentralized execution provides a context for analysis of its effectiveness in IW. Air Force Doctrine Document (AFDD) 1 presents the following definitions:

Centralized control of air and space power is the planning, direction, prioritization, synchronization, integration, and deconfliction of air and space capabilities to achieve the objectives of the joint force commander. Centralized control of air and space power should be accomplished by an airmen at the air component commander level who maintains a broad theater perspective in prioritizing the use of limited air and space assets to attain established objectives in any contingency across the range of operations. Centralized control maximizes the flexibility and effectiveness of air and space power; however, it must not become a recipe for micromanagement, stifling the initiative subordinates need to deal with combat's inevitable uncertainties.

Decentralized execution of air and space power is the delegation of execution authority to responsible and capable lowerlevel commanders to achieve effective span of control and to foster disciplined initiative, situational responsiveness, and tactical flexibility. It allows subordinates to exploit opportunities in rapidly changing, fluid situations. The benefits inherent in decentralized execution, however, are maximized only when a commander clearly communicates his intent.³⁸

The definitions do not define the boundary between control and execution allowing for ambiguity in practice. The centralized control definition and context specifically mentions that it should not be used to stifle subordinates initiative, but highlights that all decisions on the uses of air and space power should be accomplished at the air component commander level. It does not codify a role for subordinate TACS units, commanders, or aircrews and suggests that only the airmen at the component level have "a broad theater perspective".

³⁷ Ibid., 214.

³⁸ U.S. Air Force, *Air Force Doctrine Document (AFDD) 1* (Maxwell AFB, AL: Air Force Doctrine Center, 2003), 28.

The centralized control concept maintains almost all authorities for decision-making at the component level. This precludes subordinate TACS control agencies and aircrews from adding to the decision-making capacity of the TACS. This structure reflects the crisp, formal structure that Richard Butler described as a mechanistic, efficient organization. The TACS reduces decision-making costs by reducing the number of individuals injecting inputs. This enables the TACS to plan and execute a high tempo of aircraft sorties on a continual basis, providing mass. However, this crisp structure limits its adaptability to increasing uncertainty and restricts its overall decision-making capacity to the top echelon.

The TACS, largely at the Air Operations Center (AOC), mitigates the uncertainty of warfare through the fusion of massive amounts of information on friendly and enemy forces. The AOC translates this information into a Common Operational Picture (COP) for the air component commander to centrally plan and control internal air component processes. The AOC achieves flexibility through the information it can access and incorporate into its internal planning processes.³⁹ The AOC plans and coordinates horizontally with the other components as required. Overall, the AOC is an enemy focused structure that maintains initiative through its fusion of electronic intelligence.

In 2007, the Air Force recognized the unique characteristics of IW in Air Force Doctrine Document 2-3 *Irregular Warfare*, “IW encompasses a spectrum of warfare where the nature and characteristics are significantly different from traditional war”.⁴⁰ Despite this acknowledgement, the document does not address how the different nature of IW changes the role of airpower. Specifically, the document does not recognize that airpower’s primary role in IW will be to support land forces. This shortfall leaves the “decisive element mentality” in place, fails to

³⁹ David K. Gerber, *Adaptive Command and Control of Theater Airpower*, (Maxwell AFB, AL: Air University Press, 1999), 37.

⁴⁰ U.S. Air Force, *Air Force Doctrine Document (AFDD) 2-3, Irregular Warfare* (Maxwell AFB, AL: Air Force Doctrine Center, 2007), 3.

expand the paradigm of airpower in IW, and does not capture the consistent lessons learned for airpower employment in IW.

These doctrinal limitations contrast with James Corum and Wray Johnson's declaration that the support role of aviation is often its most important contribution.⁴¹ Corum and Johnson's focus on aviation's support role stems from the limitations of airpower in an IW environment. In traditional warfare, airpower provides a joint force commander the ability to take the initiative against an enemy, destroy their forces, and control the air. Our enemies in IW usually lack the ability to contest our air superiority or produce ground forces easily destroyed from the air. These IW characteristics significantly limit airpower's initiative and lethal capabilities.

Airpower cannot unilaterally understand, influence, and control a population. The dynamics of human relationships, feelings, and politics cannot be understood from the air. These important factors in influencing and controlling a population require the interaction that only results from face-to-face interaction. However, airpower can play a critical role in supporting the land forces that control and influence the population. Additionally, airpower can impact the enemy's efforts to influence the population. Integration of airpower into the ground force operations ultimately determines airpower effectiveness in IW.

The key to airpower effectiveness in IW is the ability to provide responsive support to the local ground commander influencing the population. The inherent speed, range, and versatility make airpower an important asymmetric advantage to this commander. The context for effective integration of airpower effects is driven by the local ground commander's assessment of the environment and the population. The *Counterinsurgency Field Manual* highlights the importance of lower level planning and its fluid nature in its airpower appendix.⁴² This linkage between the requirements created at the lowest tactical levels of the land component and the delivery of

⁴¹ James S. Corum and Wray R. Johnson, *Airpower in Small Wars: Fighting Insurgents and Terrorists* (Lawrence, KS: University of Kansas Press, 2003), 427.

⁴² *Field Manual (FM) 3-24*, E-4.

airpower effects strikes significant contrast to the conventional linkage between the land and air components.

AFDD 2-3 *Irregular Warfare* recognizes the potential conflict between the need for tactical level integration in IW and the component level integration called for in its centralized control definition in AFDD 1. The following caveat opens the door for lower level planning and control:

“The ability to change and adapt in IW often requires intimate knowledge of the local conditions in which operations take place. Commanders should balance the ability to centrally plan at the operational level with the potential need to rapidly plan and execute at those lower echelons.”⁴³

This doctrinal leeway to decentralize aspects of C2, however does not provide the necessary resources for decentralized control in practice. Chapter 4 of this study discusses how the Air Force’s culture, equipment and personnel hinder decentralized planning and control of IW air support.

This review of IW theory demonstrated significant differences between traditional and irregular warfare. First, their ultimate objectives strike important contrasts. Traditional warfare seeks to defeat enemy forces and/or control territory. Irregular warfare seeks to control and influence the relevant population. The primacy of the population in IW creates additional complexity, decentralizes the focus of operations, and reduces the priority of mass for airpower. Controlling and influencing a population requires significant time for enduring success. IW conflicts rarely achieve a climatic termination and often result in protracted reconciliations.

Richard Butler’s decision-making capacity theory suggests that the adaptability of decentralized C2 provides a better capability to deal with the complexity of IW. The Army and Marines approach to C2 reflect this approach. The Air Force has remained steadfast to its cultural belief in centralized control. This belief in centralized control has produced a highly

⁴³ Air Force Doctrine Document (AFDD) 2-3, *Irregular Warfare*, 68.

mechanistic, process focused, C2 structure. The next chapter will describe how the Air Force has applied airpower theory and doctrine to create the TACS.

Chapter 3: TACS: Centralized Control In Application

The cultural belief in centralized control and decentralized execution airpower has produced a C2 structure, the TACS, that focuses on efficient centrally controlled airpower under the command of a single airmen. The Theater Air Control System places the majority of the personnel, systems, and decision authority in a single, geographically collocated organization.⁴⁴ This organization, the Air Operations Center (AOC), provides the Joint Force Air Component Commander (JFACC) the information to command and control air assets to meet the Joint Force Commander's (JFC) theater air objectives. The JFACC uses the Joint Air Estimate Process, a six phase planning process, to plan air operations in accordance with the joint campaign plan. The following diagram displays how the Joint Air Estimate Process connects the Joint Forces Commander's Campaign Plan to the daily Air Tasking Order (ATO).

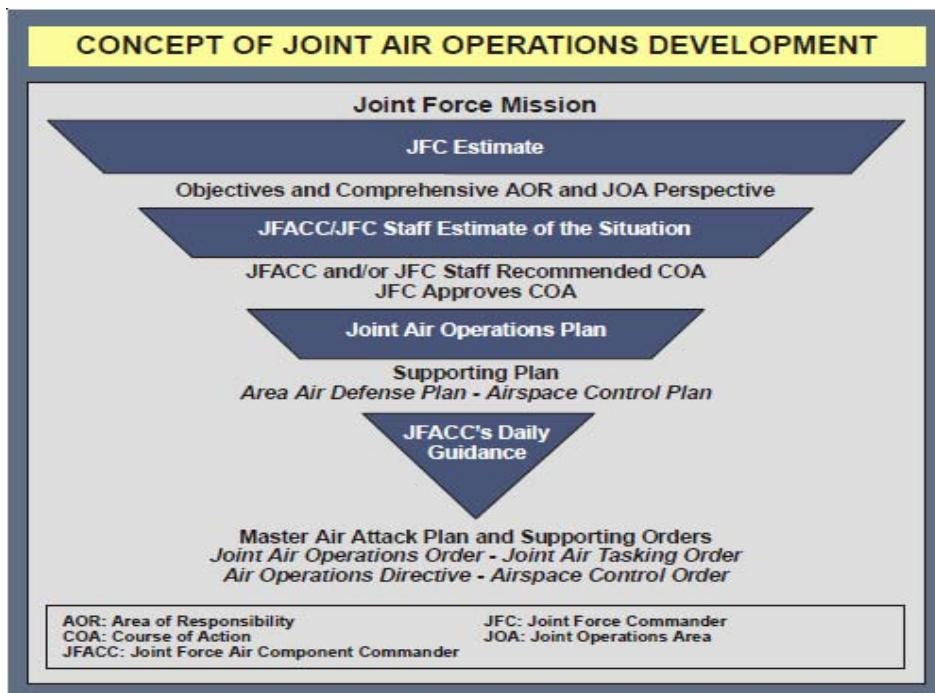


Figure III-1. Concept of Joint Air Operations Development

⁴⁴ Gerber, 36.

⁴⁵ U.S. Joint Chiefs of Staff, *Joint Publication 3-30, Command and Control for Joint Air Operations* (Washington D.C.: Government Printing Office, 2003), III-2.

This diagram reflects the upward focus of inputs for the JFACC's planning process. The upside down pyramid also suggests that the process is designed to match limited air assets against an almost unlimited number of requirements nominated from across the components.⁴⁶ The process seeks greater effectiveness through its efficiency. This focus on efficient prioritization of air assets reflects the traditional warfare mindset of numerous identifiable and vulnerable targets on the battlefield. The planning process and the TACS create a system able to generate the necessary mass of effects against the enemy to achieve the JFACC's and JFC's objectives.

The JFACC's planning processes break the JFC's campaign into 24-hour slices referred to as the ATO. The ATO provides detailed guidance down to the individual flight of aircraft, synchronizes these individual flights in space and time, and produces optimum use of resources given overwhelming requirements.

The ATO in essence produces individual orders to thousands of airmen, sailors, and marines for air operations. Inevitably unforeseen variables such as weather, unexpected aircraft maintenance, and enemy actions force deviations from the ATO. The TACS communicate deviations back to the JFACC for approval to modify the ATO. The JFACC through the AOC publishes updates to the ATOs to account for these deviations.

The planning, synchronizing, and integrating of tactical missions into the operational plan at the AOC level requires significant vertical communication through the TACS. Without this communication the JFACC's situational awareness degrades with each ATO deviation. The communication complements the massive fusion of friendly and enemy information displayed on the Common Operational Picture (COP) at the AOC. These sources of information largely generated by the subordinate elements of the TACS enable the JFACC to make real time decisions on airpower employment. The decision-making authorities and information held within the AOC often result in tactical level decisions being forced up the TACS to the AOC. This

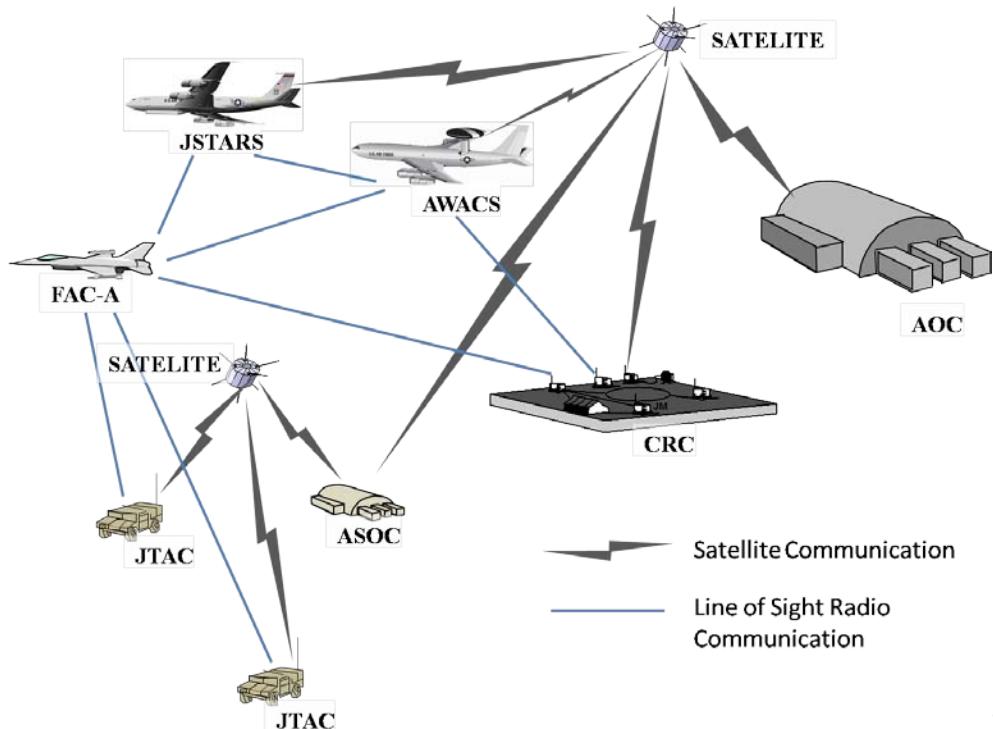
⁴⁶ Gerber, 39.

restricts the decision-making capacity to the situational awareness within the AOC and prevents the subordinate elements from significantly contributing to decision-making. The subordinate elements of the TACS, which this study refers to as control agencies, acquire significant real-time awareness of the tactical situation, but often lack the larger operational context of the situation. The operational context requires greater knowledge of the linkage between missions and the larger operational objectives they support. The control agencies lack the personnel and training to participate in the operational level planning on a continual basis. The control agencies focus their limited resources on preparing their crews for the tactical execution of the ATO and effectively communicating with the AOC. This reinforces the centralized control culture of the TACS. However, it prevents the control agencies from making decisions and solving tactical level problems without first coordinating with the AOC. Additionally, the funneling of robust information creates the potential for saturation of communication paths and overwhelming the decision-making processes of the AOC. These situations have resulted in control agencies making autonomous decisions that impact the operational level objectives.⁴⁷

The following diagram depicts the vast number of lines of communication between the AOC and the control agencies of the TACS. The control agencies include airborne elements such as the Airborne Warning and Control System (AWACS), the Joint Surveillance Target Attack Radar System (JSTARS), and the Forward Air Controllers- Airborne (FAC-A), and ground elements such as the Control and Reporting Center (CRC), the Air Support Operations Center (ASOC), and Joint Terminal Attack Controllers (JTACS).

⁴⁷ Author's experience in Operation IRAQI FREEDOM. In the opening days of OIF, control agencies saturated voice communication paths with changes to the ATO, mission reports, and targeting coordination. This resulted in the control agencies being forced to back-brief the AOC on decisions and deviations after the control agency had executed the changes.

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The control agencies not only provide the JFACC situational awareness on ATO execution, but also provide intelligence through a combination of sensors and human observations that add to the COP. The AOC relies upon the control agencies and the communication paths between them to maintain relevance in the real time execution of the ATO. The interdependence between the control agencies and the AOC creates significant tension when communication paths degrade or are overwhelmed.

The imperative for the TACS to communicate effectively has placed a priority on improving the communication technology within the TACS, which has overshadowed the larger issue of decision-making capacity within the TACS. In his book *Command in Air War: Centralized Versus Decentralized Control of Combat Airpower*, Michael Kometer attributes the

⁴⁸ Figure constructed by author based on operational experience.

decreased decision-making capacity of the TACS to a deficient depth of command relationship between the AOC, control agencies, and the aircrew they control.⁴⁹

Kometer defines the depth of command relationship as “not simply pushing information and authority down, but extending the spiral of empowerment and accountability so that decisions made on the scene are consistent with the larger strategy”.⁵⁰

The TACS construct prevents control agencies and aircrews from building the necessary context to take decision-making initiative. The narrow focus on improving communication versus expanding the decision-making capacity to the control agencies reinforces the centralized control approach. This results in the AOC directing detailed mission orders for the control agencies to relay to aircrews, often relegating the control agencies to the role of radio relay stations. This frequent practice does not empower the control agencies and removes any accountability.

The AOC pushing down detailed orders to aircrews through control agencies may be appropriate for missions that require tight coupling due to rules of engagements constraints, political sensitivity, or synergy across large spaces or time.⁵¹ For example, the integration of global strike assets such as the B-2 with conventional theater assets requires detailed timing, threat information, and flight routing that only the AOC can plan and direct. This example embodies the principles of mass and flexibility that centralized control provides the JFC.

The advantages of centralized control decrease as missions transition from tight to loose coupling. The rigid procedures and communication do not increase the chances of mission

⁴⁹ Michael W. Kometer, *Command in Air War: Centralized Versus Decentralized Control of Combat Airpower* (Maxwell AFB, AL: Air University Press, 2007), 16.

⁵⁰ Ibid., 16.

⁵¹ Coupling is the degree of oversight and interaction within a C2 system and defines the amount of impact the actions of one part of an organization has on another. Loosely coupled systems are more independent, less rigid, have less oversight, and allow subordinates more freedom to act and innovate. Tightly coupled systems are more dependent and allow subordinates freedom to act and innovate. Accordingly, it requires more oversight and procedures to ensure subordinates comply. With complex systems, tight coupling is difficult to achieve with centralized control due to the vast amounts of variables. In such systems, decentralized control with sufficient depth is a better approach. Kometer, *Command in Air War*, 74.

success and decrease the motivation of control agencies to take initiative in mission execution. For example, a control agency receives a request from a flight of two close air support aircraft (CAS) supporting a ground element to split their flight to aerial refuel in order to maintain CAS coverage. The control agency knows the rules for this request, understands the impact on the other missions, but still passes the request to the AOC for approval. The approval takes an additional five minutes to coordinate and reduces the overall CAS efficiency. The ingrained procedure of pushing requests to the AOC has trained the control agency to push all decisions to the AOC.

The diverse airpower missions the TACS supports create the need for a decision-making process that can transition from rigid, centrally controlled processes such as global strike to flexible processes such as integration of close air support. Airpower theorist and former US Air Force fighter pilot, Colonel John Boyd, detailed the advantages of optimizing the decision-making process.

Colonel Boyd wrote that the ability to observe, orient, decide, and act (OODA Loop) faster than the opponent is critical to defeating an enemy. The optimum method to achieve faster decision-making develops from fostering the initiative at the lowest levels thereby reducing the friction in the chain of command.⁵² The TACS plays the most significant role in the air component's OODA Loop. The current rigid nature of the decide portion of the TACS OODA Loop has the potential to reduce the air component's ability to outpace the opponent when faced with uncertainty. If the environment or enemy creates significant uncertainty, the need for massive ATO changes, or degrades the communication between the AOC and the TACS the decision making processes of the TACS could stagnate.

Centralized control creates significant logistical tension between the need for large bandwidth, a large personnel footprint, and a survivable location and the ability of the AOC to

⁵² David S. Fadok, *John Boyd and John Warden: Air Power's Quest for Strategic Paralysis* (Maxwell AFB, AL: Air University Press, 1995), 15.

coordinate with the JFC and his staff. The resource requirements (bandwidth and personnel) have resulted in AOCs being far from the area of operations they are supporting and the JFC. The geographic separation between the JFACC and his staff and the JFC and other components impacts the relationship and thereby trust between them.

This geographic separation between the JFC and the JFACC also highlights a cultural difference between the Air Force and the Army. The Army and Marine cultures prefer significant face-to-face interaction between commanders. With the Army and Marine officers filling a majority of the JFC positions, the JFC position reflects a preference for face-to-face interaction. The Air Force's experience with integrating geographically dispersed staffs and units creates a culture more comfortable with electronic communication. This cultural difference exacerbates tensions that arise between JFCs and JFACCs. This tension permeates the coordination between their staffs.

The centralized approach to planning and control of airpower also limits the number of airmen that work face-to-face with land component units. The concentration of airpower strategists and planners at the AOC creates a perception of invisibility to the land component tactical units. The only habitual airpower expertise within the unit is the ALO or JTAC. Additionally, the limited interaction with land component operations prevents airmen outside the AOC from learning the land component perspective on airpower employment. This perspective would provide greater insight into how the tactical missions support the broader operational objectives. For example, an aircrew member on JSTARS monitors an enemy armored column moving to a fuel site, but never interacts with the land component to realize that the friendly scheme of maneuver hinges on the information they provided about the armor column. The crewmember simply knows that he located, tracked, and reported the movement of an armor column.

The reliance on centralized control in wartime does not reflect the C2 approach during peacetime flying training. The AOC does not usually participate in day-to-day flying training.

The size and scope of the AOC responsibilities and authorities requires C2 simulations and exercises to train its personnel adequately. The lack of an AOC in flying training prevents control agencies and aircrews from developing the mindset and procedures to smoothly transition to the centrally controlled flying operations of the TACS in an operational theater. This disconnect between day-to-day flying training and operational theater control creates friction between control agencies and aircrews who have trained in a decentralized environment where initiative is fostered and the AOC staff that expects these personnel to perform similar to the simulated control agencies and aircrews in their exercises.⁵³ The introduction of joint organizations and forces compounds the centralized control friction.

The centralized control approach that TACS employs focuses inter-component training at the AOC level. This provides the AOC staff interaction with the land, maritime, and special operations forces in exercises and simulations. This interaction develops a better understanding of what these forces will expect from airpower in operational theaters and develops an operational level viewpoint. However, this centralized approach to integration in training usually does not result in other elements of the TACS participating in operational level joint training. This limits TACS and aircrew day-to-day training to the tactical level.

The centralized approach of the TACS has created few operational level billets (i.e. joint task force, component, combatant commander) for officers to fill in the field grade officer ranks. This has reduced the motivation for officers to develop their appreciation of the operational level of war prior to mid grade level professional military education (PME).⁵⁴ PME currently provides the best opportunity to expand an operator's perspective into the operational level of war, but does not occur until the 10 to 14 year point in an officer's career. This leaves only two to three

⁵³ Gerber, 47.

⁵⁴ **Operational level of war** — The level of war at which campaigns and major operations are planned, conducted, and sustained to achieve strategic objectives within theaters or other operational areas. Activities at this level link tactics and strategy by establishing operational objectives needed to achieve the strategic objectives, sequencing events to achieve the operational objectives, initiating actions, and applying resources to bring about and sustain these events. *Joint Publication 1-02*, 399.

years for an officer to serve in an operational level billet in a twenty-year career if they desire to remain competitive for command opportunities. Additionally, an operator's tactical performance and potential to command serve as the primary selection criteria to attend PME. The Air Force does not select candidates based on their aptitude or potential to serve at the operational level. The Air Force's centralized approach to C2 creates a system with little opportunity or motivation to serve at the operational level of war. The limited production of mid grade officers with an appreciation for the operational level limits the Air Force's operational level expertise, restricts the flexibility of C2 options for JFACCs, and inevitably places airmen into joint positions without the necessary education or training to integrate airpower into joint operations.

Operational level expertise remains within the AOC staff due to the limited number of airpower strategists and planners that the Air Force produces. The geographical separation of this expertise from the other components limits its exposure to the joint force. However, subordinate TACS elements and aircrews do collocate with other component staffs and units. Despite their lack of operational level education and training, these members often fill the relationship and trust gap created by the lack of on-hand airpower strategists and planners.

The singular vision of executing a conventional war with contested airspace, massing of fielded forces, and air requirements that greatly exceed the assets available has supported a cultural belief in the centralized control of airpower. This vision stems from the roots of Air Force independence and a desire to demonstrate airpower's capability to deliver the decisive blow in combat. The TACS codifies this belief in a centrally controlled, mechanistic system capable of orchestrating thousands of sorties daily to produce theater wide effects in support of corps level maneuver. The drive to achieve this vision and enable the JFACC to maintain central control has resulted in the exponential growth of the AOC. The personnel and technological capabilities of the AOCs have outpaced and overgrown the capabilities of the subordinate elements of the TACS and the aircrews they control. This uneven growth has tightened the control of the AOC over airpower and has reduced the ability of control agencies and aircrew to understand and act upon

the intent of the JFACC. The AOC capitalizes on its capabilities and information through the detailed orders of the ATO.

The efficiency of the AOC's processes directly relate to its ability to provide the JFACC situational awareness of the battlefield. Increasing uncertainty and volatility on the battlefield decrease the validity of the ATO and the other AOC processes as the decision-making speed outpace the processes of the AOC. Once the battlefield begins to outpace the decision-making capability of the AOC the control agencies and aircrews increasingly acquire decision-making responsibilities. This delegation of control presents these elements difficult decisions without the broader context of the JFACC's intent, the understanding of the operational level of war, and the established relationships with the joint forces. The TACS plans and executes air operations brilliantly in an environment of high certainty and with the advantages of the initiative against the enemy. However, the TACS has not cultivated a C2 structure prepared to take the initiative in an uncertain, volatile, or complex environment.

The review of IW theory and doctrine demonstrated that complexity, local knowledge, and the population define the IW environment. The next chapter examines the ability of the TACS to adapt to these characteristics and effectively integrate airpower in this environment.

Chapter 4: TACS Effectiveness in the New Environment

The centralized control culture of the Air Force has produced a TACS organization focused on producing massed airpower to destroy conventional enemy forces through consolidation of command and control of airpower under the JFACC. The air component's ability to steal the initiative, shape the battlefield, and deal a decisive blow to the enemy in the major combat operations phase of Operation IRAQI FREEDOM demonstrated the advantages of centralized control in traditional warfare. The quick destruction of the Iraqi conventional forces and overthrow of Saddam Hussein's regime catapulted the US led coalition into stability operations.

The transition to stability operations moved the coalition into an IW environment with new objectives of securing the population and stabilizing Iraq. Airpower employment transitioned to a greater supporting role. The TACS found itself having to adapt to the increasingly decentralized operations of IW. The need to mass airpower effects to destroy the enemy's forces disappeared. Persistent, responsive, and largely non-lethal airpower replaced mass as a priority. The TACS ability to adapt to these priorities leads back to this study's research question, *“Can the Air Force’s traditional command and control structure effectively integrate airpower into decentralized IW operations?”*

This chapter examines the ability of the TACS to adapt to IW mission requirements. Specifically, it discusses the capability of the TACS's equipment and personnel to plan and control decentralized IW operations. The study capitalizes on the experiences of airmen and soldiers executing IW operations in OIF and OEF. Air Force Doctrine has incorporated this wealth of IW experience in AFDD 2-3 *Irregular Warfare*. AFDD 2-3 recognizes the challenges of transitioning the centralized control of the TACS to the decentralized IW environment. It provides the doctrinal flexibility to adapt the TACS in the following paragraph,

“Certain operations require planning at the operational level while other operations may need to be developed at lower echelons...IW requires a planning structure that is equally

focused at the local level and attuned to the dynamic environment. Airmen appropriately positioned at the lower levels with respective input and reachback to the AOC may allow more effective use of airpower at the tactical level freeing other assets to conduct other operational level operations.”⁵⁵

Despite the doctrinal flexibility that AFDD 2-3 suggests, the centralized control culture of the Air Force has resulted in TACS equipment and personnel oriented towards traditional warfare. This orientation hinders the TACS from adapting to the decentralized planning and control of airpower as suggested in AFDD 2-3. The traditional warfare orientation has resulted in TACS investment focused on the capabilities of the AOC.

The TACS’ equipment hinders it from adapting to the decentralized nature of IW. The narrowly focused investment of resources into the AOC has created a significant gap between the capabilities of the AOC and the control agencies. The lack of investment compounds the limitations of the control agencies traditional warfare focused systems. IW’s smaller geographic perspective, land centric focus, lack of organized mechanized forces, and the increased need for network centric communications degrade the capabilities of the control agencies. These characteristics of IW cast light on the insufficient data processing capability and communication bandwidth of the control agencies in the TACS.⁵⁶ The control agencies equipment limitations stem from their role to serve primarily as a sensor and extension of the decision-making capacity of the AOC.

The Air Force developed the control agencies of the TACS for surveillance and control of airpower for major combat operations. The control agencies contribute to the JFACC’s situational awareness by locating, identifying, and tracking conventional forces. The closed system architecture of these systems inhibits frequent upgrades in technology, integration of newer communication systems, or application of commercial off the shelf systems. The large footprint and high operating and maintenance costs significantly increase the cost / benefit ratio

⁵⁵ AFDD 2-3, *Irregular Warfare*, 68.

⁵⁶ James K. Smith, *USAF Theater Air Control System: Where Do We Go From Here* (Quantico, VA: Marine Corps University, 2001), 2.

of these systems as conflicts move down the spectrum of conflict. The significant costs of these weapons programs also resulted in fewer systems purchased, creating low-density systems. The Air Force codified this tradeoff in the term Low Density / High Demand systems. These systems enabled the JFACC the information necessary to destroy the Iraqi Armed Forces, but struggled with the challenges of IW.

The transition from the expansive scope of the airspace in traditional warfare to the often-microscopic scope of IW challenges the TACS equipment. Additionally, the TACS equipment development focused on an air environment versus the land centric focus of IW. The following example based on the author's experience in OEF demonstrates both of these challenges.

A control agency controlling an on-call CAS aircraft receives a request for immediate support. The agency receives the coordinates for the location where friendly forces have been attacked and are now engaged in a firefight. The location has several aircraft already in the area supporting other missions. The airspace is congested, but the control agency needs to find airspace for an additional aircraft to support the forces under attack. The agency passes the coordinates for the unit under attack. The aircraft requests more information on the layout of the area around the forces. The control agency's system cannot provide any imagery for the area. The control agency cannot describe the area or send a digital image to the pilot of the aircraft. Additionally, the density of the aircraft in the small area around the attack prevents the control agency from using its radar and computer to de-conflict air traffic. The control agency relies on lengthy voice communication with all of the aircraft to position aircraft at different altitudes to avoid a mid-air collision. The agency's equipment lacks the data processing and communication capabilities to accept, process, or distribute ground imagery or breakout aircraft working in dense airspace. The Air Force's focus on the central control of the AOC reduces the priority to invest in the technical solutions to these limitations.

These types of limitations limit the role of the control agencies in Afghanistan, Iraq, and future IW environments. The control agencies' equipment limitations hamper the dissemination

of their unique awareness of the tactical situation. The control agencies' constant communication with the tactical aircraft supporting the ground commander provides the most timely and relevant awareness within the TACS of current airpower requirements. This communication chain (ground commander-tactical aircraft-control agency) drives the integration of airpower at the tactical level. However, the control agency and tactical aircrew lack the authority and operational level awareness to make decisions outside the tactical employment.

This situation highlights the disconnect between the centrally controlled processes of the TACS, the limitations of the control agencies equipment, and the decentralized nature of employing airpower in IW. The AOC maintains the equipment to fuse massive amounts of data, distribute robust communications, and drive changes to the larger operational level plan. However, they do not have immediate access to the local environment that so often determines the effectiveness of IW airpower employment. This results in the control agencies not significantly contributing to the decision-making capacity of the TACS and reducing the responsiveness of airpower C2. The TACS' control agencies lack the equipment necessary to adapt to the control requirements for IW. This prevents the JFACC from employing the more decentralized control proposed in AFDD 2-3.

The centralized control culture of the TACS consolidates airpower planning and C2 expertise in the AOC. The consolidation of airpower expertise restricts the decision-making capacity and authorities outside of the AOC and hinders joint relationships below the component level. Without these relationships, trust between the services suffers.

The consolidation of airpower expertise at the AOC results from the traditional warfare orientation of the TACS. This location provides the planners maximum interaction with the JFACC, access to the centrally controlled processes of the AOC, and robust equipment to communicate with the JFC's and other component staffs. The centrally driven, enemy oriented nature of traditional warfare makes this consolidation optimal.

IW operations in Iraq and Afghanistan demonstrate the necessity of airpower planning and control expertise at the tactical level. The air component has sent planners down to the brigade and battalion level in both theaters.⁵⁷ In addition to these permanent personnel, the AOC continually pushes forward augmentees to synchronize air and ground planning. Augmentees do not train with the units they are supporting prior to their arrival and rarely receive special liaison training. They essentially receive on the job training in a combat environment. Despite these limitations, the Army has praised the additional planning expertise.⁵⁸ The Air Force has not incorporated these positions or capabilities into the formal TACS structure to make it an enduring capability. The ALOs and JTACS provide the only formal portion of the TACS collocated with tactical level units of the land component.

Tactical level (brigade and below) planners focus on air effects to support operations and missions in their area of operation. Conversely, AOC planners focus on the entire joint area of operation. The decentralized planning of ground operations creates a vast number of planning requirements for the TACS to integrate airpower. The differences in numbers and perspectives make it extremely difficult for AOC planners to integrate with each battalion. Additionally, the different planning timelines complicate the coordination between the AOC and the tactical level units. This shifts responsibility for planning and accessing airpower resources to the only on hand air expertise, the ALO and/or JTAC.⁵⁹ The ALO and/or JTAC is limited in his scope of airpower expertise, in his ability to impact operational level air planning at the AOC, and his communication and control capabilities.⁶⁰

⁵⁷ Interview with Lt Col Dale Sinnott, Air Support Operations Director, International Security Assistance Force, Afghanistan, December 2009.

⁵⁸ Maj(P) David S. Pierce Jr. (Battalion S-3 in Afghanistan from January 2007 to April 2008), interview by author, Leavenworth, KS, February 5, 2009.

⁵⁹ Ibid.

⁶⁰ Lt Col Dale Sinnott (Director, Air Support Operations Center in Afghanistan in 2008/2009), email interview by author, Kabul, AFG, December 14, 2008.

JTACs and ALOs at the battalion level are usually company grade officers and mid grade non-commissioned officers who rarely have extensive training in IW, the Military Decision Making Process, or in TACS employment. This limits their ability to translate the ground commander's planning into the full spectrum of airpower requirements and communicate these requirements to the other TACS elements. Additionally, the JTAC and/or ALO are focused primarily on the control of airpower during the execution of missions and may not have time to plan future missions. The JTAC or ALO usually only controls CAS aircraft specifically tasked to work with them and has little insight into other airpower mission types such as ISR. Even with CAS aircraft, the ALO and/or JTAC only retain the authority to use the aircraft tasked in the manner specified on the ATO. This limitation prevents the ALO or JTAC from changing the aircraft's mission, changing the aircraft's timing, or operating outside the aircraft's assigned airspace without getting approval from the AOC. Additionally, any short-term changes in the ground commander's timing or requirements may result in no air support due to the other requirements on the ATO. This prevents the local ground commander from effectively employing airpower to achieve his mission objectives. The success of the local ground commander is the critical element in IW operations. The Air Force has addressed the perception of inadequate airpower expertise at the component level with the creation of the Air Component Coordination Element (ACCE).

The Air Force instituted the ACCE position to eliminate a recognized leadership and airpower expertise gap at the command level. In Iraq and Afghanistan, this position provides the JFC and land component face-to-face interaction with the air component. However, the position lacks command authority within the TACS; the senior ranking airman on the JFC's staff has no ability to command or control airpower. The ACCE position supports the centralized control cultural belief and represents the difficulty of adapting the TACS to a decentralized environment.

The equipment and personnel of the TACS hinder its ability to integrate airpower into decentralized IW operations. The control agencies equipment lacks the data processing capability

and bandwidth to capitalize on their situational awareness. The TACS centrally focused structure places few TACS airman in direct contact with the ground commanders they support. The consolidation of planners at the AOC prevents airpower expertise from informing the integration of airpower at the lowest levels and restricts the decision-making capacity of the TACS to the situational awareness of the AOC. This combination of equipment and personnel limitations prevents airpower from realizing one of its greatest inherent strengths, flexibility. The cultural belief in centralized control of airpower creates a resistance within the TACS and the Air Force to adapt to the decentralized nature of IW.

Chapter 5: Conclusion

The losses of Kasserine Pass in 1943 forever imprinted the principle of mass upon the US Air Force.⁶¹ The Air Force realized that the ability to mass airpower stems from a command and control structure that consolidates airpower under the command of a single airman. The then Army Air Corps codified this belief in July 1943 in FM 100-20. This belief in centralized command and control of airpower became one underlying reason to create an independent US Air Force. This linkage between mass, centralized command and control, and Air Force independence plays a significant role in Air Force culture. The Air Force codified its significance by placing centralized control and decentralized execution in the position of its master tenet.

The successes of Operation DESERT STORM and the major combat operations of Operation IRAQI FREEDOM (OIF) reinforced the Air Force's belief in centralized control. These operations demonstrated the ability of massed airpower under the centralized control of a JFACC to destroy enemy forces. The decisive defeat of the Iraqi forces by massed air and ground forces reinforced the doctrinal objectives of traditional warfare inspired by Carl Von Clausewitz's *On War*.⁶² The measurable objectives of DESERT STORM contrast the often incalculable objectives in IW.

Irregular warfare theory and doctrine highlight the primacy of influencing and controlling the population in IW. This fundamental difference in objectives combined with uncontested air superiority alters the priorities for airpower employment in IW. The critical linkage between defeating enemy forces, mass, and centralized control diffuses in IW. Additionally, the increased supporting role to the land component heightens the need for tactical flexibility, responsiveness, and persistence.

⁶¹ Air Historical Group, *Europe: Torch to Pointblank, vol 2 of The Army Air Forces in World War II*, eds. Wesley Frank Craven and James Lea Cate. (Chicago: University of Chicago Press, 1949), 205.

⁶² von Clausewitz, 90.

The Air Force's command and control system, the TACS, determines airpower's ability to meet these priorities. The TACS adherence to the centralized control belief limits its flexibility in IW. Air Force Chief of Staff, Gen Merrill A. McPeak, captured this tension in a message to Air Combat Command in 1992: "What I'm suggesting is that centralized "control," as now practiced, may be robbing us of one our most important operational virtues- flexibility".⁶³ The ability of the TACS to adapt to the priorities of IW results from its organizational structure.

The organizational structure of the TACS reflects traditional warfare airpower employment. The TACS consolidates planning and decision-making resources in the top echelon, the AOC. The AOC dominates centrally controlled planning and execution to enable the air component to sustain massed air operations throughout a theater of operations. The high volume of sorties drives standardized processes and procedures, which require a crisp organizational structure. These rigid processes and procedures thrive under higher degrees of certainty and routine.

The central role of the population in IW injects greater uncertainty and complexity into the operational environment. The ability to succeed in this environment results from an understanding of the interdependencies at the local level. These characteristics force decentralized operations. The TACS ability to integrate airpower into this environment results from its coordination with the local ground commander.

The Air Force culture of centralized control has produced a command and control structure that hinders its ability to coordinate with the local ground commander. Despite the doctrinal flexibility allowed for in AFDD 2-3, the TACS lacks the equipment and personnel to push decentralized planning and control to the tactical level. The limited presence of airmen at the tactical level decreases the ability of the local ground commander to incorporate airpower into his operations.

⁶³ Gen Merrill A. McPeak, USAF, *Selected Works: 1990-1994* (Maxwell AFB, Ala.: Air University Press, 1995), 103-4.

The Air Force has instituted temporary solutions to distribute airpower expertise to the tactical level in Afghanistan and Iraq. However, the Air Force has not committed the resources to adapt the TACS equipment and personnel for the long term. Most significantly, the Air Force resists adapting the authorities and processes that threaten centralized control of airpower by the JFACC through the AOC. This cultural resistance hinders the adaptation of the TACS to realize the flexibility proposed in the service's own IW doctrine.

Cultivating the ability to decentralize the control of airpower within the TACS requires investing in the control agencies equipment and personnel and distributing airpower expertise to the battalion level on a permanent basis. Increasing the capabilities of the control agencies enables growth in the decision-making capacity of the TACS. This increased decision-making capacity provides the TACS the ability to adapt to the IW environment, decentralize C2 when required, and improve airpower integration in IW operations. The specific equipment and personnel requirements to meet these demands require further study and development. However, this process should integrate the expertise and experience across the services. The ground commander places a crucial role in determining the effectiveness of airpower's integration in IW.

The growth in the demand for ISR, EW, and air mobility capabilities in the current IW conflicts suggest requirements for airpower expertise across a broad spectrum. Brigades and battalions require the necessary airpower expertise to plan and execute operations with airpower integrated from the start. The ALOs and JTACS cannot continue to be the sole expertise for planning all airpower in addition to controlling CAS missions. The Air Force should invest in greater airpower expertise at lower levels of the TACS.

Current Air Force initiatives seek to modify the TACS through creating a joint control agency to improve integration with the local ground commander.⁶⁴ These initiatives

⁶⁴ Maj Gen William J. Rew, Director of Operational Planning, Policy and Strategy (AF/A5X), "Support to the Ground Warfighter" (Fires Support Seminar: Integrating Fires to Address Hybrid Threats-A 21st Century Challenge, June 2009), Slide 17.

acknowledge the differences of the IW environment, the need for TACS change, but do not directly address decentralizing control of airpower for IW. In essence, the initiative reorganized existing TACS capabilities in a different form with no decentralization. However, this initiative in combination with the service's doctrinal recognition of adapting C2 to IW, implies the Air Force may be open to broadening its approach to C2.

The TACS currently lacks the equipment and personnel to integrate airpower effectively into the local ground commander's operations. The crisp, formal structure of the TACS that enables airpower to succeed in traditional warfare obstructs it from adapting to the decentralized nature of irregular warfare.

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